UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00417

August 23, 2002

Mr. Lawrence C. Evans
U.S. Army Corps of Engineers
Portland District, CENWP-CO-GP
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation on the City of Oakland's Raw Water Intake Construction, Calapooya Creek, Douglas County, Oregon (Corps No. 2002-00108).

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) for the City of Oakland's Raw Water Intake Construction Project, Calapooya Creek, Douglas County, Oregon. NOAA Fisheries notified the Corps of Engineers (Corps) June 19, 2002, that the project is likely to adversely affect Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch),* and proceeded with formal consultation. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize the continued existence of OC coho salmon. Pursuant to section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

This Opinion also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for coho salmon and chinook salmon (*O. tshawytscha*). As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation. Questions regarding this letter should be directed to Ken Phippen of my staff in the Oregon Habitat Branch at 541.957.3385.

Sincerely,

For Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Ed Emerick, ODSL
Jim Brick, ODFW
Steve Wille, USFWS
Craig Tuss, UWFWS

Endangered Species Act - Section 7 Consultation

&

Magnuson-Stevens Act

Essential Fish Habitat Consultation

BIOLOGICAL OPINION

City of Oakland's Raw Water Intake Construction Project,
Calapooya Creek, Douglas County, Oregon
(Corps No. 2002-00108)

Agency:	Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, NOAA Fisheries Northwest Region
Date Issued:	August 23, 2002
Issued by:	for Michael R Crouse D. Robert Lohn Regional Administrator
Refer to:	**2002/00417**

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1. ENDANGERED SPECIES ACT

1.1 Background

On April 22, 2002, the U. S. Army Corps of Engineers (Corps) requested informal consultation under the Endangered Species Act (ESA) section 7 on issuance of a permit under Section 404 of the Clean Water Act. The applicant (City of Oakland) proposes to construct a raw water intake in Calapooya Creek. The National Marine Fisheries Service (NOAA Fisheries) reviewed the materials provided by the Corps, a cover letter and material submitted with the application, conducted several site visits, reviewed the application with the applicant (representatives of the City of Oakland), and discussed the proposal with Oregon Department of Fish and Wildlife (ODFW) staff. On June 19, 2002, NOAA Fisheries informed the Corps that Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) juveniles may occur within the project area during the in-water work window, therefore, implementation of this project is "likely to adversely affect" (LAA) OC coho salmon.

The City of Oakland (City) proposes to replace an existing raw water intake with a new raw water intake and two rock deflectors, and to conduct annual maintenance dredging. The existing intake screen does not comply with NOAA Fisheries' requirements, and the existing diversion dam no longer functions as a diversion. The existing dam and intake require either major repairs or replacement. The City has determined that it is preferable to replace the diversion dam with a new intake because of the effects of the current dam on Calapooya Creek and its aquatic resources. At low flows, the dam is a passage barrier and affects channel flows and processes. The water withdrawal associated with this water intake was assessed in a previous Opinion (refer to NOAA Fisheries OSB2000-0017), therefore this interrelated action is considered within baseline conditions.

In Oregon coastal streams north of Cape Blanco, including Umpqua River basin drainages such as Calapooya Creek, NOAA Fisheries listed OC coho salmon under the ESA as threatened on August 10, 1998 (63 FR 42587). Protective regulations for OC coho salmon were issued by NOAA Fisheries under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

NOAA Fisheries prepared this biological opinion (Opinion) to address affects of the proposed project on this species. The objective of this Opinion is to determine whether the subject action is likely to jeopardize the continued existence of the above listed species.

1.2 Proposed Action

The City proposes to construct a new raw water intake in Calapooya Creek, a tributary of the Umpqua River, construct two rock deflectors, and conduct annual maintenance dredging. In order to implement this construction, a temporary coffer dam will be constructed around the in-

water project area. Proposed coffer dam materials include: Water-filled bladders; hand-placed sandbags filled with material from off-site; cement highway barriers covered with plastic sheeting; clean, imported fill material isolated from the stream with impermeable liner; or any equivalent construction technique that uses no site material. The coffer dam will be removed as much as possible using a large crane or clamshell working from the bank. If it is necessary for equipment to enter the waterway, it will be cleaned prior to stream entry. Wheel washing will be done on a gravel pad away from the stream and the wash water drained through a silt trap.

The proposed new raw water intake would be an exposed, circular intake screen with the screen face installed approximately perpendicular to the stream current to support adequate sweeping velocities. The screen will be placed in an excavation designed to provide a minimum submergence of more than one screen radius during minimum stream flow. The excavation will be sloped to reduce eddying and sediment deposition. Compressed air will be used to clean debris from the screen face. The proposed intake screen will be 12 inches in diameter and will be designed to comply with NOAA Fisheries' requirement of an approach velocity of less than 0.4 feet per second (fps).

The intake pipe will be buried below the stream bottom except where it is connected to the screen. Sand, riprap, and river-run rock will provide backfill within the 65-foot long trench. On the bank, native backfill will be put in place and replanted with native grass and shrubs. The backfill will include a layer of riprap below the native material for bank stability.

Excavation of the intake screen pool and trench will require breaking up the weathered shale streambed. This equipment may include a pneumatic drill, rock hammer, or bucket with ripping teeth. Blasting is also a proposed method.

The existing dam and intake will be removed after the new intake is constructed. The dam is primarily constructed of rocks and broken concrete, which will be removed with a large backhoe equipped with a clamshell. It is expected that a pneumatic drill will be used to break up material too large for the backhoe. The dam will be excavated to bedrock, and the material removed will be transported off-site. Demolition of the dam will be done in phases, with only one side of the stream being worked on at a time. Downstream silt barriers will be staggered across half of the stream to provide free passage for fish.

The City proposes the construction of two rock deflectors to channel stream flow past the intake screen. These deflectors will be approximately 15 feet long, 5 feet wide, and 3 feet high. The preferred construction materials are concrete and class 2000 riprap. The deflectors would be secured with reinforcement bars inserted into bedrock. Minor excavation of the streambed will be needed in order to key the deflectors into the streambed.

Additionally, the City proposes annual maintenance of the intake structure. It is expected that sediment deposition will require the excavation of approximately 25 cubic yards (cy) of material annually. The City proposes to implement this maintenance during the in-water work window of

July 1 through September 15. A vacuum hose is proposed as the removal method. All materials removed will be disposed of off-site in an appropriate landfill.

The City proposes to implement project design criteria intended to minimize impacts to the aquatic resource. These measures include the following:

- Water that is pumped from the intake construction area will be diverted to a sediment pond for clarification before it flows back into the main stream channel. A filter fabric fence or similar filter will be constructed to filter the sediment pond overflow.
- Sediment fences will be placed along the top of the stream bank and other strategic locations to reduce transport of sediment from excavations during construction.
- Overlapping silt dams of appropriate filter fabric will be placed less than 100 feet downstream of the existing diversion dam during its removal.
- All excavated material removed from below the ordinary high water (OHW) line will be disposed of off-site.
- Equipment entering the waterway will be clean, and will not transport any sediment from the banks. Wheel washing will be done on a gravel pad away from the stream, and wash water drained through a filter system.
- Hazmat booms will be placed downstream of any equipment operating within the OHW. All equipment will be fueled off-site or, if an on-site area is designated for refueling, the stream will be protected from the site.

1.3 Biological Information

Although limited data are available to assess population numbers or trends, NOAA Fisheries believes that all coho salmon stocks comprising the OC coho salmon evolutionarily significant unit (ESU) are depressed relative to past abundance. The OC coho salmon ESU is identified as all naturally-spawned populations of coho salmon in coastal streams south of the Columbia River and north of Cape Blanco (60 FR 38011, July 25, 1995). Biological information for OC coho salmon can be found in species status assessments by NOAA Fisheries (Weitkamp *et al.* 1995) and by the ODFW (Nickelson *et al.* 1992).

Abundance of wild coho salmon spawners in Oregon coastal streams declined from about 1965 to roughly 1975, and has fluctuated at a low level since then (Nickelson *et al.* 1992). Spawning escapements for this ESU may be less than 5% of that in the early 1900s. Contemporary production of coho salmon may be less than 10% of the historic production (Nickelson *et al.* 1992). Average spawner abundance has been relatively constant since the late 1970s, but preharvest abundance has declined. Average recruits-per-spawner may also be declining. The OC coho salmon ESU, although not at immediate danger of extinction, may become endangered in the future if present trends continue (Weitkamp *et al.* 1995).

The project is located near river mile (RM) 15 of Calapooya Creek. Calapooya Creek is a low-gradient tributary of the Umpqua River. OC coho salmon enter the Umpqua River system in

September through February, and migrate up the system to the tributaries. Spawning typically occurs from late November through early February, depending on the location within the basin. For this area, coho salmon are typically observed spawning near the end of November through early January. At the project site, the habitat is considered primarily migration with some rearing capabilities.

Juvenile coho salmon will spend one year in freshwater prior to smoltification. These juveniles are typically seeking thermal refugia and cover in smaller tributary streams, but due to declining water discharge in August and September, may be forced into the larger drainages, such as the proposed action area of Calapooya Creek. Some studies have observed downstream dispersal movement soon after emergence (Bradford and Taylor 1997). Kruzic (1998) and Roper (1995) observed juvenile coho salmon leaving the tributaries and entering the mainstem of the South Umpqua River in their studies of the Upper South Umpqua basin. Studies have shown a variety of environmental factors that may influence movement. These factors may include temperature, fish length, lunar cycle, stream discharge, increases in turbidity, food availability, and habitat quality (Kruzic 1998, Bilby and Bisson 1987, Sigler *et al.* 1984, and Hartman *et al.* 1982).

Calapooya Creek does provide year-round habitat for OC coho salmon. Due to water quality conditions, Calapooya Creek in this area provides more of a migration corridor than spawning and rearing habitat. The low-gradient channel characteristics indicates this was an important spawning and rearing area prior to the existing habitat degradation. Cabin Creek, a nearby Calapooya Creek tributary, provides spawning and rearing habitat for OC coho salmon, and may provide a local source of juvenile coho salmon in Calapooya Creek.

Freshwater habitat incorporates important components of the environment, such as water, abiotic and biotic physical factors, substrates, stream channel structures, and adjacent riparian areas. Areas adjacent to a stream that provide the functions of shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris (LWD) or organic matter are important components of OC coho salmon habitat. The project is located along the banks and substrate of Calapooya Creek, which provides chinook salmon (*O. tshawytscha*) rearing habitat for OC coho salmon juveniles, and a migration corridor for adults and outmigrating smolts.

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the biological requirements of the listed species, and evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects.

This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize the continued existence of the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action. For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries considers the extent to which the proposed action impairs the function of essential biological and ecological elements necessary for juvenile and adult migration, spawning, and rearing of the listed and proposed species under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA to listed salmon is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new data available that are relevant to the determination (Weitkamp *et al.* 1995).

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing and migration. The current status of OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and, in some cases their status may have worsened.

1.4.2 Environmental Baseline

Regulations implementing section 7 of the ESA (CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, state, or private actions and other human activities in the action area. The environmental baseline also includes the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of state and private actions that are contemporaneous with the consultation in progress.

The action area is defined as all areas to be affected directly or indirectly by the Federal action, not merely the immediate area involved in the action (50 CFR 402.02). Direct effects occur at the project site and may extend upstream or downstream based on the potential for disturbance, fish passage impairment, hydraulics, sediment and pollutant discharge, and the extent of riparian and instream habitat modifications. Indirect effects may occur throughout the watershed where

actions lead to additional activities or affect ecological functions contributing to stream degradation. For this consultation, the action area includes the affected streambed, streambank, adjacent riparian zone, the aquatic areas of Calapooya Creek at the project site, and approximately 300 feet upstream and downstream of the site.

As in much of the Pacific Northwest, timber harvest, road construction, urbanization, and agricultural development have all had their influence on aquatic habitat conditions. This reach of Calapooya Creek is listed on Oregon's water quality limited streams for pH, temperature, bacteria, flow modification, habitat modification, and dissolved oxygen (ODEQ 2001). Based on this information and the ODFW habitat surveys, the Calapooya Creek baseline conditions are degraded and considered "not properly functioning" for most indicators of the Matrix of Pathways and Indicators (MPI - NOAA Fisheries 1996).

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

Direct harm may occur to OC coho salmon juveniles due to this project's in-water activities. Identified mechanisms and sources of impacts that may cause direct effects to OC coho salmon include harassment and displacement from suitable habitat, high turbidity, handling and transporting juveniles while draining coffer dams, annual sediment dredging, blasting, and hazardous materials, such as uncured concrete and petroleum products. In addition to those impact sources, continued operation of the water intake poses a risk of entrainment for fry and juvenile coho salmon. The withdrawal of water associated with this water intake was assessed in an earlier biological opinion (refer to: NOAA Fisheries OSB2000-0017), therefore this interrelated action is considered part of the baseline.

Project activities that displace individuals from holding areas may increase coho salmon vulnerability to predators. Juvenile coho salmon will seek hiding cover from predators, but activities such as excavator work, movement of workers around the project site, or a sudden shock wave created by blasting or equipment, may frighten the fish into fleeing. This fleeing reaction from cover will quite often trigger a response from nearby predators.

The use of mechanized machinery in the water has, at a minimum, the potential for disturbing juvenile coho salmon and/or causing displacement of these fish from the immediate work area. Disturbance and harassment of individual juvenile coho salmon due to heavy equipment is expected to occur only within the project site and 300 feet upstream and downstream of the activity. This is likely the extent of the visual distance, shockwave dispersal, or distance a fish may flee from the site. Any juveniles outside of this described area are not expected to be affected by equipment operation. Construction of the coffer dams is also another activity that will lead to disturbance and displacement. Displacement of individuals due to the high concentration of suspended sediments is also possible. Turbidity increase is expected to be undetectable beyond 300 feet downstream of the project. Blasting will also displace fish and may have a direct effect

due to the shock wave through water. Using a pneumatic drill or other equipment to demolish the old dam will likely displace the fish due to the vibration waves transmitted through the rock and water.

Hazardous material spills require immediate control in order to limit the extent of impacts. Spill of petroleum based materials can rapidly migrate downstream from a site. This problem must be addressed through proactive practices, such as sorbent booms and other control measures. Hazardous materials from fuel spills and equipment failure are potential impact sources. Operation of back-hoes and excavators requires the use of fuel, hydraulic fluid and lubricants, which, if spilled into the bed or channel of a body of water or into the adjacent riparian zone of a water body during project construction, could injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain polycyclic aromatic hydrocarbons (PAHs) which can cause acute toxicity to salmonids at high levels of exposure and can also cause chronic lethal as well as acute and chronic sublethal effects to aquatic organisms (Neff 1985).

Pouring concrete in the vicinity of water increases the risk of killing or injuring juvenile OC coho salmon due to the toxicity of uncured concrete. Concrete alters the water pH, therefore the volume of spill and receiving water will determine the extent of impacts. It is expected that the impacts from a potential concrete spill would not exceed an area beyond 100 feet due to the coffer dam, limited volume of concrete, and control measures to be described in a hazardous materials response plan.

The Calapooya Creek work includes constructing a coffer dam to isolate the work site from flowing water. Salvage of fish from within the coffer dam will be necessary before it is completely drained. The proposed capture of fish through electro-shocking or seining and handling increases the risk of injury and mortality to OC coho salmon. Fish removal activities would be in accordance with NOAA Fisheries fish handling guidelines (NMFS 1998). Any listed fish removed from the isolated work area would experience high stress with the possibility of up to a 5% delayed mortality rate, depending on rescue method. Water temperatures are an important factor in estimating stress and delayed mortality. Higher water temperatures increase mortality rates due to the higher stress levels the fish are experiencing. Pumping water from an area also exposes the juveniles to entrainment. Proper screening and operation will limit the risk. The Calapooya Creek's substrate consists of some silts and clays, the disturbance of this material will create very high turbidity, which will also increase handling stress. The time of day the action will occur was not specified in the project description, therefore it must be assessed as if it will occur during the heat of the day, therefore increasing the risk of harm. In addition, sediment laden water created within isolated work areas could escape, resulting in impacts to the aquatic environment downstream of the project site.

Blasting has the potential of causing direct take of individual OC coho salmon. Direct effects by blasting in the water are possible if the site is not isolated from inhabited waters. The project information identified blasting as a potential method to create the trench needed for pipe

placement. This activity will occur within the coffer dam, therefore no submerged blasting will occur. With dewatering of the trench area prior to blasting, disturbance and displacement may occur due to the blast. Although the bedrock is expected to transmit some of the shock wave to adjacent water, direct lethal take would not be expected. The area affected would be determined by the size of charge, but given the hard bedrock bottom, the shock wave would be efficiently transferred.

Direct effects from entrainment of fry and juvenile OC coho salmon by the long-term operation of this raw water intake is possible. The City proposes to reduce this risk by following the screening and operation guidelines developed by NOAA Fisheries for water intakes (NMFS 1995). The proposed intake screen will be 12 inches in diameter. The screen was designed to comply with NOAA Fisheries' requirements by maintaining the approach velocity to less than 0.4 fps. At a flow rate of 2 cubic feet per second (cfs), which is equal to the City's water right, the approach velocity through the intake screen would be 0.265 fps. The screen design submitted to NOAA Fisheries fulfills the requirements established by NOAA Fisheries to minimize entrainment risks (Jundt 2002).

Indirect effects are expected relative to turbidity and toxic substances affecting aquatic macroinvertebrates (forage for juvenile OC coho salmon) and the annual dredging work removing aquatic macroinvertebrate habitat. Each year, approximately 25 cy of stream substrate will be removed by suction dredging. This material is habitat for fine sediment dwelling invertebrates, a source of food for juvenile OC coho salmon. Work area isolation due to the coffer dams can also result in a loss of aquatic invertebrates due to dewatering areas within the wetted channel. Indirect effects on coho salmon from project effects on riparian vegetation are expected to be minimal.

Elimination of the diversion dam will benefit fish passage in Calapooya Creek. Low flow upstream migration is hampered by the dam. Dam removal will provide upstream migration and allow OC coho salmon juveniles to seek cool water refugia in upstream tributaries.

1.5.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Other activities within the watershed have the potential to impact fish and habitat within the action area. Future Federal actions, including the ongoing operation of land management activities that are being (or have been) reviewed through separate section 7 consultation processes.

Non-federal activities within the action area are expected to increase slightly. Although there is a projected 34% increase in human population over the next 25 years in Oregon (ODAS 1999), the area upstream of this site is not expected to follow this rapid population growth. Surrounding uplands are primarily agricultural land, rural homes, small wood lot owners, and industrial timber

land. Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, at slightly increased levels due to population growth.

1.6 Conclusion

After reviewing the current status of OC coho salmon, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, NOAA Fisheries has determined that the Oakland Raw Water Intake Project, as proposed, is not likely to jeopardize the continued existence of OC coho salmon. This finding is based, in part, on incorporation of the project design criteria into the proposed project design, (*i.e.*, ODFW in-water work window, intake fish screen design, placement and maintenance of a sorbent boom downstream of the work site will minimize spread of any hazardous material spills, sediment erosion control, and construction of coffer dams), but also on the following considerations: (1) All explosive detonations will occur within the dewatered area of the coffer dams and multiple charges will have detonation delays; (2) all capture, handling, and relocation of OC coho salmon will follow NOAA Fisheries guidelines; (3) development and implementation of a spill prevention and countermeasure or pollution control plan will reduce risk from hazardous materials; (4) providing sufficient time for concrete to cure will reduce risk from uncured concrete; (5) planting of trees within the riparian area will provide nutrient input (such as leaves and twigs) and insects as forage for juvenile OC coho salmon; (6) implementation of an approved operation and maintenance plan for the fish screen will reduce risk to juvenile OC coho salmon; and (7) the proposed action will not appreciably reduce the functioning of the ESU's already impaired habitats, or retard the long-term progress of impaired habitats toward properly functioning condition (PFC).

1.7 Reinitiation of Consultation

This concludes formal consultation on this action in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded; (2) the action is modified in a way that causes an effect on the listed species that was not previously considered in the biological assessment and this Opinion; (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the proposed action covered by this Opinion has more than a negligible likelihood of incidental take of juvenile OC coho salmon resulting from detrimental effects from the disturbance and displacement of individuals due to the use of equipment and blasting in Calapooya Creek (non-lethal), displacement of individuals due to elevated turbidity levels (non-lethal), risk due to hazardous materials (lethal, non-lethal), risk due to the handling of fish by seining or electroshocking within the coffer dams (lethal), and indirect effects from annual sediment dredging (non-lethal). The effects of these activities on population levels are largely unquantifiable and not expected to be measurable in the long term. Therefore, even though NOAA Fisheries expects some low level of non-lethal incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as this, NOAA Fisheries designates the expected level of take in terms of the extent of take allowed. Therefore, NOAA Fisheries limits the area of allowable incidental take during construction and annual maintenance to an area bounded by 300 feet upstream and downstream of the project site. Incidental take occurring beyond these areas is not authorized by this consultation. Lethal take is defined as limited to killing and harm, and is limited to the activities associated with salvaging coho salmon from the coffer dams (capture, removal, and relocation). Submersed blasting is not covered under this incidental take statement. Lethal take shall not exceed five juvenile OC coho salmon.

2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species.

1. Minimize the likelihood of incidental take associated with impacts to riparian and instream habitats, including annual dredging, by avoiding or replacing lost riparian and instream functions.

2. Minimize the likelihood of incidental take from construction activities in or near watercourses by implementing pollution and erosion control measures.

3. Minimize the likelihood of incidental take associated with instream work by restricting work to recommended in-water work periods.

4. Minimize the likelihood of incidental take associated with rock blasting by ensuring all protective measures are followed to control the shock waves.

5. Minimize the likelihood of incidental take associated with the capture and handling of individual OC coho salmon juveniles by following accepted guidelines.

6. Minimize the likelihood of incidental take associated with the operation of the water intake system by developing and implementing an operation and maintenance plan for the system.

7. Monitor the effectiveness of the proposed conservation measures in minimizing incidental take and report to NOAA Fisheries.

2.3 Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (instream and riparian habitat function), above, the Corps shall ensure that:

    a. Clearing limit boundaries associated with site access and construction are flagged to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
    b. Complete site restoration and clean up occurs, including protection of bare earth by seeding, planting and mulching in the following manner:
        i. Plant disturbed areas with native vegetation specific to the project vicinity or the region of the state where the project is found, using a diverse assemblage of woody and herbaceous species.
        ii. Do not apply herbicide as part of this permitted action.
        iii. Achieve an 80% survival success of planting after three years.

iv. If success standard has not been achieved after 3 years, prepare an alternative plan to address temporal loss of function.
v. Monitor establishment of planting until 80% survival has been achieved.

c. Riparian planting includes tree species in order to compensate for the loss of benthic invertebrates due to annual dredging. Tree species will provide shade, cover, and greater surface area for terrestrial invertebrates, an alternate food source. Trees will provide better benefits than planting only shrubs and grasses as proposed.

2. To implement Reasonable and Prudent Measure #2 (construction), above, the Corps shall ensure that a Pollution and Erosion Control Plan (PECP) is developed for the project to prevent point-source pollution related to construction operations containing all of the pertinent elements listed below and meeting requirements of all applicable laws and regulations. The PECP should:

a. Describe methods that will be used to prevent erosion and sedimentation associated with access roads, construction sites, equipment and material storage sites, fueling operations, and staging areas. Fuel, maintain and store heavy equipment as follows.
i. Place vehicle staging, maintenance, refueling, and fuel storage areas at least 150 feet horizontal distance from any stream.
ii. Inspect all vehicles operated within 150 feet of any stream or water body daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected before the vehicle resumes operation.
iii. When not in use, store vehicles in the vehicle staging area.

b. Describe hazardous products or materials that will be used, including procedures for inventory, storage, handling, and monitoring. Practices to confine, remove and dispose of excess concrete, cement and other mortars or bonding agents, including measures for washout facilities.

c. Develop a spill containment and control plan with these components: Notification procedures; specific clean up and disposal instructions for different products; quick response containment and clean up measures; proposed methods for disposal of spilled materials; and employee training for spill containment.

d. Install a sorbant boom downstream of the project site prior to project implementation and maintain the boom throughout the in-water work phase.

e. Stockpile a supply of erosion control materials (*e.g.*, silt fence and straw bales) on-site to respond to sediment emergencies. Use sterile straw or hay bales when available to prevent introduction of weeds.

f. Install all temporary erosion controls (*e.g.*, straw bales, silt fences) downslope of project activities within the riparian area. Keep them in-place and maintained throughout the contract period, and until permanent erosion control measures are effective.

g. Where fertilizer can wash into the river, fertilizer should not be used within 50 feet of the river.

3. To implement Reasonable and Prudent Measure #3 (instream work), above, the Corps shall ensure that:

a. All in-water work will be completed within the ODFW approved in-water work period (July 1 - September 15). Extensions of the in-water work period should not be anticipated except under extenuating circumstances and must be approved in advance by NOAA Fisheries in writing.

4. To implement Reasonable and Prudent Measure #4 (blasting) the Corps shall ensure that:

a. All blasting occurs within the dewatered area of the coffer dam.
b. If multiple charges are needed along the length of the proposed trench, a minimum of a 25-millisecond delay would occur between the detonation of each hole's charge. The intent of this delay is to ensure that the peak pressure wave caused by the detonation of each charge is not increased in magnitude by the persistence of the pressure wave created by the previous explosion.

5. To implement Reasonable and Prudent Measure #5 (isolation of in-water work area and proper fish handling methods) the Corps shall ensure that:

a. During in-water work (work within the ordinary high water mark) if the project involves either significant channel disturbance or use of equipment within the wetted channel, the work area is well isolated from the active flowing stream within a coffer dam (made out of sand bags, sheet pilings, inflatable bags, *etc.*) or similar structure, to minimize the potential for sediment entrainment. Further, no ground or substrate disturbing action will occur within the ordinary high water mark 300 feet upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters. After the coffer dam is in place, any fish trapped in the isolation pool will be removed by a permitted ODFW Biologist or an ODFW-approved biologist prior to de-watering, using NOAA Fisheries guidelines.
b. Any temporary water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries fish screen criteria.
    i. Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.
    ii. Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.
c. <u>Fish Salvage</u>.

i. Prior to, and intermittently during, pumping attempts will be made to salvage and release fish from the work isolation area as is prudent to minimize risk of injury. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:

(1) Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.

(2) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.

(3) Seined fish must be released as near as possible to capture sites.

(4) The transfer of any ESA-listed fish from the applicant to third-parties other than NOAA Fisheries personnel requires written approval from NOAA Fisheries.

(5) The applicant must obtain any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities.

(6) The applicant must allow NOAA Fisheries, or its designated representative, to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.

(7) A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions prior to and following placement and removal of barriers; the means of fish removal; the number of fish removed by species; the condition of all fish released, and any incidence of observed injury or mortality.

ii. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 1998):

(1) Electrofishing may not occur in the vicinity of listed adults in spawning condition or in the vicinity of redds containing eggs.

(2) Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a log.

(3) A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.

(4) Measure conductivity and set voltage as follows:

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

(5) Direct current (DC) must be used at all times.

(6) Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. *In general*, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

(7) The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

(8) The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

(9) Crew must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

(10) Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

(11) The electrofishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, together with observations on fish condition, will improve technique and form the basis for training new operators.

d. Fish Passage. Full passage shall be provided for both adult and juvenile forms of salmonid species throughout the construction period.

6. To implement Reasonable and Prudent Measure #6 (operation and maintenance plan), above, the Corps shall ensure that:

a. The plan will be submitted to NOAA Fisheries for review and approval.
b. Consent is given to NOAA Fisheries personnel to inspect the screen operation in order to verify acceptable operating procedures are implemented.
c. A log of the annual maintenance dredging is kept that includes:
   i. Personnel names.
   ii. Date dredged.
   iii. Volume of dredge materials.
   iv. Disposal location.

7. To implement Reasonable and Prudent Measure #7 (monitoring), above, the Corps shall ensure that:

a. Comprehensive monitoring will occur and a post project report prepared to ensure that these terms and conditions meet their objective of minimizing the likelihood of adverse effects to OC coho salmon.
   i. Submit a report to NOAA Fisheries within 120 days of completing the project. Describe the Corp's success meeting conservation recommendations above. Include the following information.
      (1) Project identification.
         (a) Project name.
         (b) Starting and ending dates of completed project work.
         (c) The Corps contact person.
      (2) Pollution and erosion control. A summary of all pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
      (3) Site restoration. Documentation of the following conditions:
         (a) Finished grade slopes and elevations.

(b) Log and rock structure elevations, orientation, and anchoring, if any.
(c) Planting composition and density.
(d) A plan to inspect and, if necessary, replace failed plantings and structures as required in 1(b).

(4) A narrative assessment of the effects of the project and compensatory mitigation on natural stream function.

(5) Photographic documentation of environmental conditions at the project site before, during and after project completion.

(6) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.

(7) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.

(8) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

b. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: 2002/00417
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

c. If dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the NOAA Fisheries Service Office for Law Enforcement, at the Roseburg Field Office, 2900 NW Stewart Parkway, Roseburg, Oregon, 97470; phone 541.957.3388. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of essential fish habitat (EFH) descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook, coho, and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999).

Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of this document. The action area includes a 600 foot reach of Calapooya Creek. This was defined as 300 feet upstream and downstream from the project site. This area has been designated as EFH for various life stages of chinook salmon and coho salmon.

3.4 Effects of Proposed Action

As described in detail in section 1.5 of this document, the proposed activity may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include: Water quality (turbidity and chemical contamination), dewatering of macroinvertebrate habitat, and the covering of stream substrate with fill.

Turbidity. Excavation in the wetted channel and placement of fill may result in short-term releases of sediment. An increase in turbidity can impact fish and filter-feeding macro-invertebrates downstream of the work site.

Chemical Contamination. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur, with adverse effects on fish and macroinvertebrates.

Dewatering Habitat. Within the coffer dams, stream substrate will be dewatered and impacts to macroinvertebrates will occur.

Removing Stream Substrate. Annually removing 25 cy of dredge material will impact benthic invertebrates inhabiting the stream substrate. This is a loss of food for juvenile OC coho salmon and juvenile OC chinook salmon.

3.5 Conclusion

NOAA Fisheries believes that the proposed action may adversely affect the EFH for Pacific salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the City and all of the Reasonable and Prudent Measures and Terms and Conditions contained in sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.8 Supplemental Consultation

The Corps must reinitiate EFH consultation with NOAA Fisheries if the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

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